

# **24th International Conference on Urban Planning and Regional Development in the Information Society**

**2-4 April 2019 - Karlsruhe Institute of Technology**

## **Perfect Smart Cities vs Real Emotional Cities Keynote address**

### **“Smart” and “Emotional” Cities: Key to Urban Sustainability**

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## **Abstract**

### **1. “Smart cities” as a “functional” concept.**

*Smart cities are using information and communications technology - ICT - to connect hitherto unconnected urban activities .*

*ICT’s can help connect activities within buildings, neighbourhoods or cities, and help in linking such activities as land use, heritage conservation, energy saving, telecommunications, commerce/banking and mobility.*

*This functional concept can serve multiple aims and objectives, including the production of knowledge-based services making use of “big-data” collecting.*

### **2. “Emotional cities” as a “cultural” concept.**

*Cities can appeal to their citizens and visitors by their quality of life.*

*Beyond the Gross Development Product statistics, quality of life includes the perceived quality of air, water and health.*

*The continuity of their urban landscapes invites leisure activities (“green and blue” trails). It offers diversity of visual experiences to users of the public spaces (“views from the street” rather than “views from the road”).*

*It offers squares, trees and gardens, fountains and canopies, all designed for both walking and seated users, and an overall urban density propitious to informal contacts between people, as opposed to undefined urban spread.*

*3. Combining, on the one hand, the “smart cities” functionalities that enhance the availability of urban services and safety and security for all citizens with, on the other, a qualitative “emotional appeal to their citizens and users is, perhaps, a key to urban sustainability and to adaptation to unavoidable and disruptive economic, social and technical changes affecting cities.*

# CONTENTS

## **1. Features of “Smart functional” cities : linking activities through data exchange – five examples:**

- the case of banking / telephone linking
- exchange platforms between users and between users and rulers
- smart buildings
- smart mobility, including autonomous connected vehicles
- resource saving through circularity (recycling of used goods into valuable new goods)

## **2. Features of “Smart emotional” cities : linking citizens**

- emphasis on quality of life (public spaces, leisure activities and education)
- enhancement of citizen identity through social diversity and informal contacts
- emotional citizen involvement through community events (festivals, cultural events, folklore, supporter sports)

### **3. Global sustainability includes both functional and emotional features : three award-winning cases of cities/neighbourhoods -**

- Zurich: smart mix of land-use and mobility – quality of life
- Bilbao: smart mix of urban renewal and transport – with emphasis on culture
- Louvain-la Neuve: high density-low rise buildings – resource saving – active citizen involvement



# **1) “SMART CITIES” AS A FUNCTIONAL CONCEPT**

## **1) “SMART CITIES” AS A FUNCTIONAL CONCEPT**

“Smart cities” are using information and communications technology – ICT - to connect hitherto unconnected urban functions and activities

Information and communication technology can help connect activities within buildings, neighbourhoods or cities such as land use, heritage conservation, energy saving, telecommunications, commerce/banking and mobility.

This functional concept can serve multiple objectives and business interests including. among others, the production of knowledge-based services making use of “big-data” collecting.

This will be illustrated by five examples.

## 1.1) Using data for money transfers: mobile phones as banks

A kiosk displays M-Pesa advertising in Nairobi, Kenya (2012).



M-Pesa (M for mobile, Pesa is Swahili for money) is a mobile phone-based money transfer, financing and microfinancing service, launched in 2007 by Vodafone in Kenya and Tanzania.

The service allows users to deposit money into an account stored on their own cell phones, to send balances using PIN-secured SMS text messages to other users, including sellers of goods and services, and to redeem deposits for regular cash money.

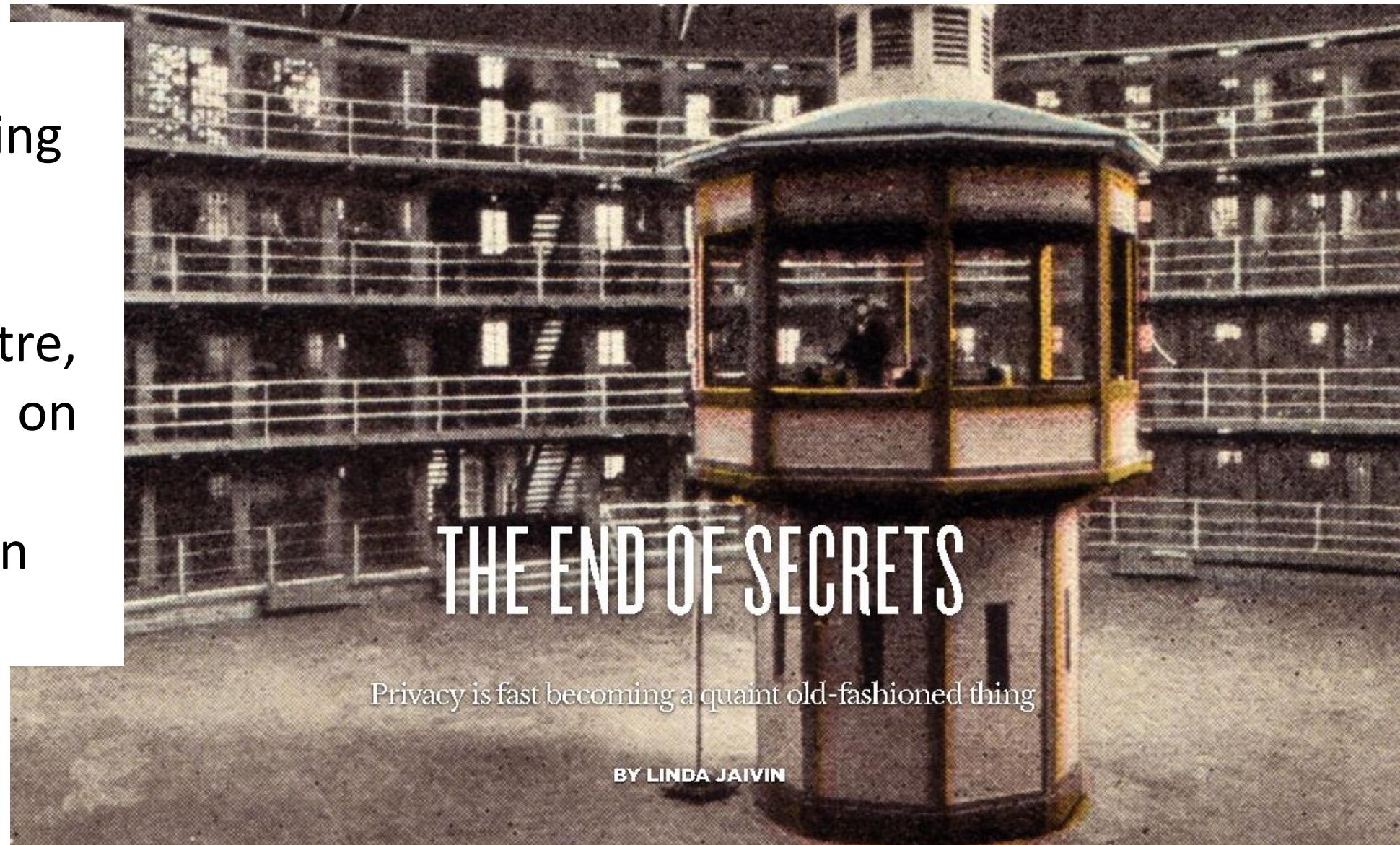
M-Pesa is thus a “smart” branchless banking service.

M-Pesa has spread quickly, and by 2010 had become the most successful mobile-phone-based financial service in the developing world. An estimated total of 17 million M-Pesa accounts have been opened in Kenya, and it has expanded to Tanzania, Ghana, Afghanistan, South Africa, India and in eastern Europe.

The service has been lauded for giving millions of people access to the formal financial system and for reducing urban crime in an otherwise largely cash-based society (Bisello 2018).

## 1.2) Big-data exchange platforms between users and between users and rulers

A postcard showing the interior of Stateville Correctional Centre, Illinois, modelled on Bentham's Panopticon (Jaivin 2014).



Data exchange has been multiplying the added value of the traditional merchant exchange by getting to know the profile of the buyers.

Beyond Orwell's "1984" and Huxley's "Brave New World" the data available on each citizen also multiply the potential of citizen alienation by the masters of big-data collection, including governments.

The government of China is using big-data for imposing its "Conformity policy" on all citizens. It is an "unbridled" toy for "unbridled" governments.

Today big-data often take the form of value added information on **electronic platforms** in fields such as accommodation (Airbnb), mobility (Uber), auctions (eBay) and the collection of personal data (Facebook). The profiles so collected are a highly saleable product and a tool for manipulation. This high value creation gives these platforms easy access to international funding (the “Uberisation” of services).

Smart platforms can, however, be owned by independent cooperatives as a modern extension of the 19<sup>th</sup> century cooperative movement (Rochdale co-operative pioneers, cradle of the movement), reported in the Platform Cooperativism Consortium - PCC (Scholz 2016). The profits in this case flow back to their members, instead of shareholders.

But in fact smart cities are most often the brainchildren of smart big money.

### **1.3) Smart buildings as power plants and resource savers**

Smart buildings aim at optimising air, water, energy production (solar energy generated from both roofs and windows), battery charging, etc., within a centralised system.

The multinational contractor Besix (Besix 2018) sees its Dutch headquarters “smart building” as an encyclopedia of smart building features:

*A “Smart Building” integrates major building systems on a common network and shares information and functionality between systems to improve energy efficiency, operational effectiveness, and occupant satisfaction.\**





View of BESIX's new Netherlands headquarters, Dordrecht

## **1.4) Smart mobility including management of autonomous connected vehicles**

Autonomous vehicles (AV), or zero-occupancy-vehicles, have been described as a liberation from the chore of driving.

However, according to the International Transport Forum's (ITF 2017) report, trucks without drivers should increase road congestion. The reduction in employment costs may induce fleet owners to put half empty trucks on highways.

As to cars, AVs may in effect result in users acquiring greater tolerance for long distance commuting and therefore increase urban spread, unless collective transport AV van fleets are used for short- distance links to mass public transport through the street network (Keolis 2017).

Keolis  
Lyon  
2017



## **1.5) Saving resources through circularity**

The principle is to replace the linear production chain (produce, use and throw away) by a circular production chain (produce, use, reuse into a secondary product).

The latest news in building recycling is the Amsterdam CIRCL building, initiated by a bank.



**“Circl”, Amsterdam multi-purpose circular pavilion (ABN AMRO 2017)**



Every resource used in the building is recycled. All parts of the building are dismantlable. Remember that the Eiffel Tower was to be dismantled after the Paris World Exhibition but has been kept ever since by popular demand.

Recycling in a wider context is only made possible by linking supply and demand for secondary products and certifying them. This may include recycling CO<sub>2</sub> emissions instead of trying to store them underground.

## **2) “SMART EMOTIONAL” CITIES**

Combining on the one hand the “smart cities” functionalities that enhance the availability of urban services, safety and security for all citizens, and on the other hand an “emotional” qualitative appeal to their citizens and users.

## 2.1) Emphasis on quality of life, leisure activities and education

“Medellin Ciudad Inteligente” emphasizes popular IT education, including a network of large and small libraries, even in metro stations.



EspaÑa Library of Medellin. A strong statement in support of the “knowledge city”.

## **2.2) Enhancement of citizen satisfaction through places for informal contacts**

New York's Times Square was clogged by traffic. Mayor Bloomberg made pedestrianisation acceptable by introducing a trial period during which traffic flows were analysed and showed that it took less time for taxis to take other routes. This was a smart combination of smart data to enhance citizen satisfaction.



New York City's Times Square (before and after pedestrianisation).



Rome's Piazza Navona is a living symbol of an emotional city as the god Neptune of Bernini's fountain is spewing towards the facade of his rival Borromini's Sant Agnese church.



## 2.3) Emotional citizen involvement through community events (festivals, cultural events, folklore, supporter sports)



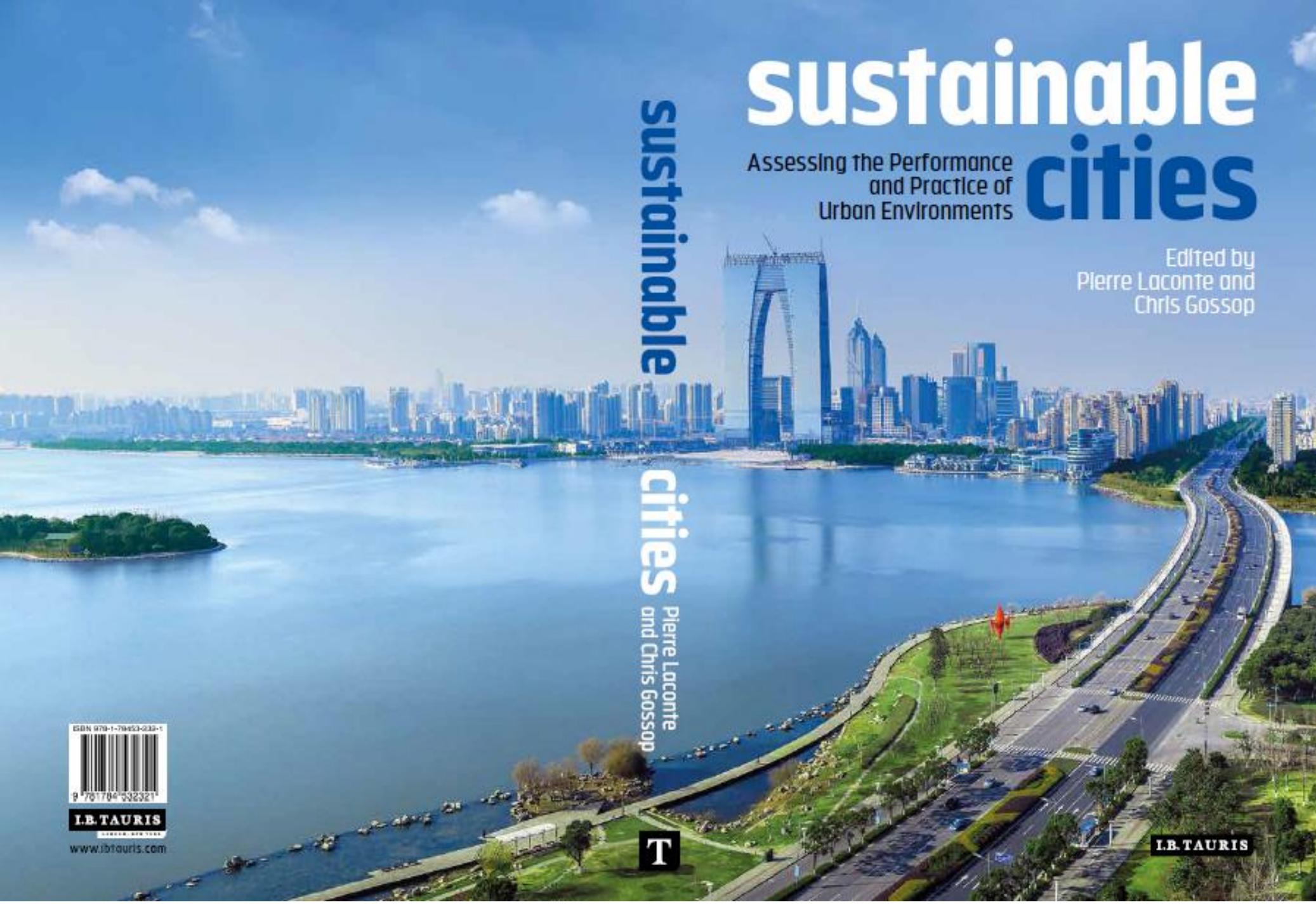
Oktoberfest, Munich (1.5 m inhabitants).



**Carnaval des Gilles de Binche – on UNESCO's World Heritage list - (Binche, Belgium: 30,000 inhabitants) – this carnival involves the entire population.**

### **3) Global urban sustainability includes both functional and emotional features**

Selecting three award winning cities/neighbourhoods within the list of practices referenced in the literature assessing the sustainability performance of cities (Laconte 2016).



# sustainable cities

Assessing the Performance  
and Practice of  
Urban Environments

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- \* **Zurich:** smart mix of land-use and mobility – quality of life
- \* **Bilbao:** smart mix of urban renewal and transport – emphasis on culture
- \* **Louvain-la Neuve:** high density-low rise – resource saving – intense citizen involvement

### **3.1) ZURICH**

Smart mix of land-use and mobility for improved quality of life (1985-)

## Zurich's traffic management

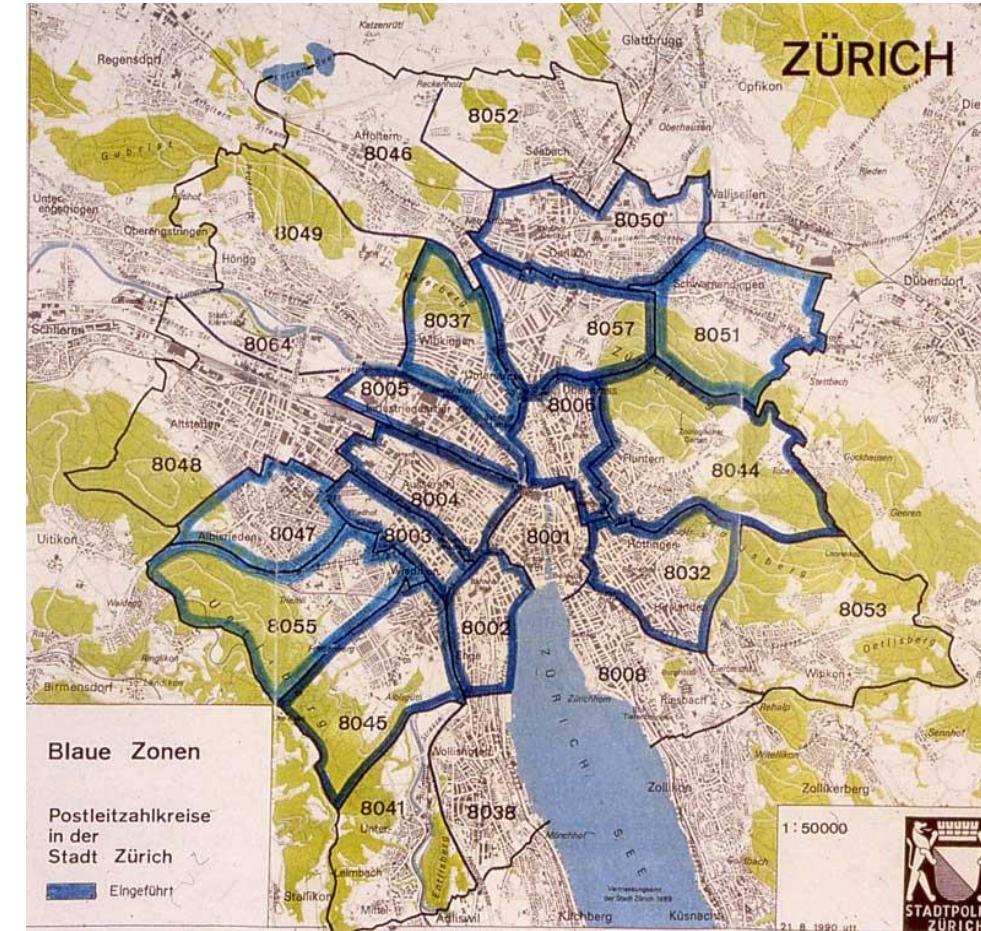
In Zurich, trams and buses enjoy absolute priority on-street. When approaching a traffic light the sensor (seen on the lower left) ensures they have a green light at any time of the day. The reliability of timetables makes public transport the city's fastest mode of transport. Modal split is around 80% in favour of public transport.



The political ingenuity lies, however, in the parking policy favouring local voters: the KISS principle (“Keep it Smart Simple”).

# Zurich's parking management

Unrestricted on-street parking is exclusively reserved for Zurich-registered residents (the voters), while cars entering the city from other municipalities have a maximum 90' parking time. This measure triggered a large-scale return of inhabitants to the city, benefited the public car parks, and has been politically very rewarding for the city fathers, while suburban rail travel has been improved. This system could be applied in any city where commuters come from other electoral districts.



An emotional attachment to the city's way of life embodied in its attitude to mobility and relations between centre and periphery - e.g. Limnat Valley (Scholl 2018) - and the inclusionary approach to mobility illustrated by the Nissan automobile poster.



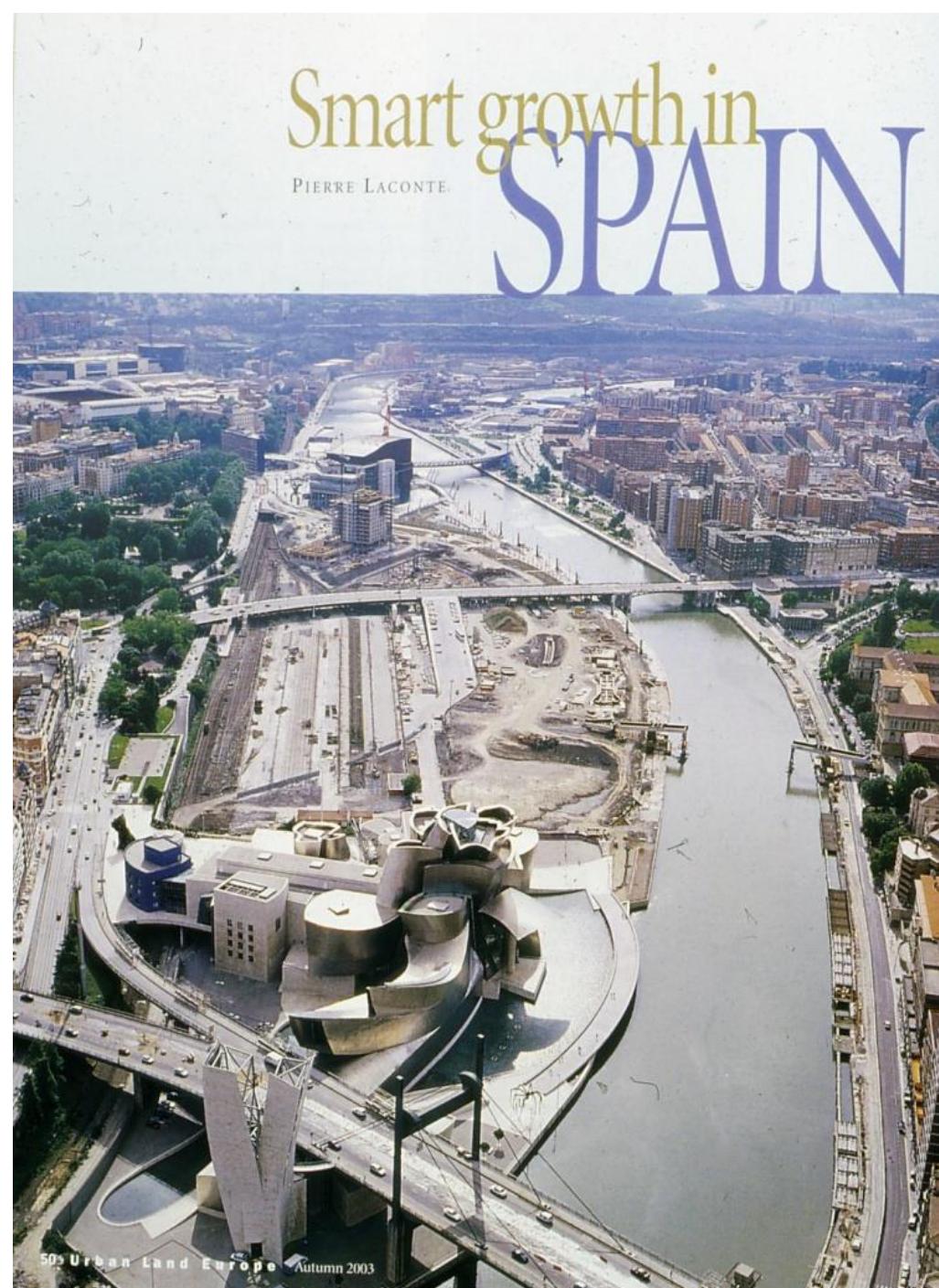
### **3.2) BILBAO**

Bilbao: a smart mix of urban regeneration and multimodal transport – with an emphasis on culture, quality of life and meeting places – using a smart public-public land development corporation (1989-2012)



The once prosperous steel industry was wiped out by the 1989 crisis. Industrial land was re-used for new activities, based on services and culture, while preserving architectural heritage.

The derelict industrial area along the Ría, owned by several public bodies, from local to national, was unified by a public-public partnership embodied in a common public redevelopment corporation - Ría 2000. The two anchors for new development, at each end of the site, were the new Guggenheim museum and the congress and concert centre.





The valuable land situated between the two anchors and very close to the central business district was developed by Ría 2000, with an obligation to invest all of the proceeds in new public infrastructure along the same canal.

The huge surplus generated by the land sales was to be used exclusively to enhance connectivity and further urban regeneration.

The plan's implementation was completed in 2011.



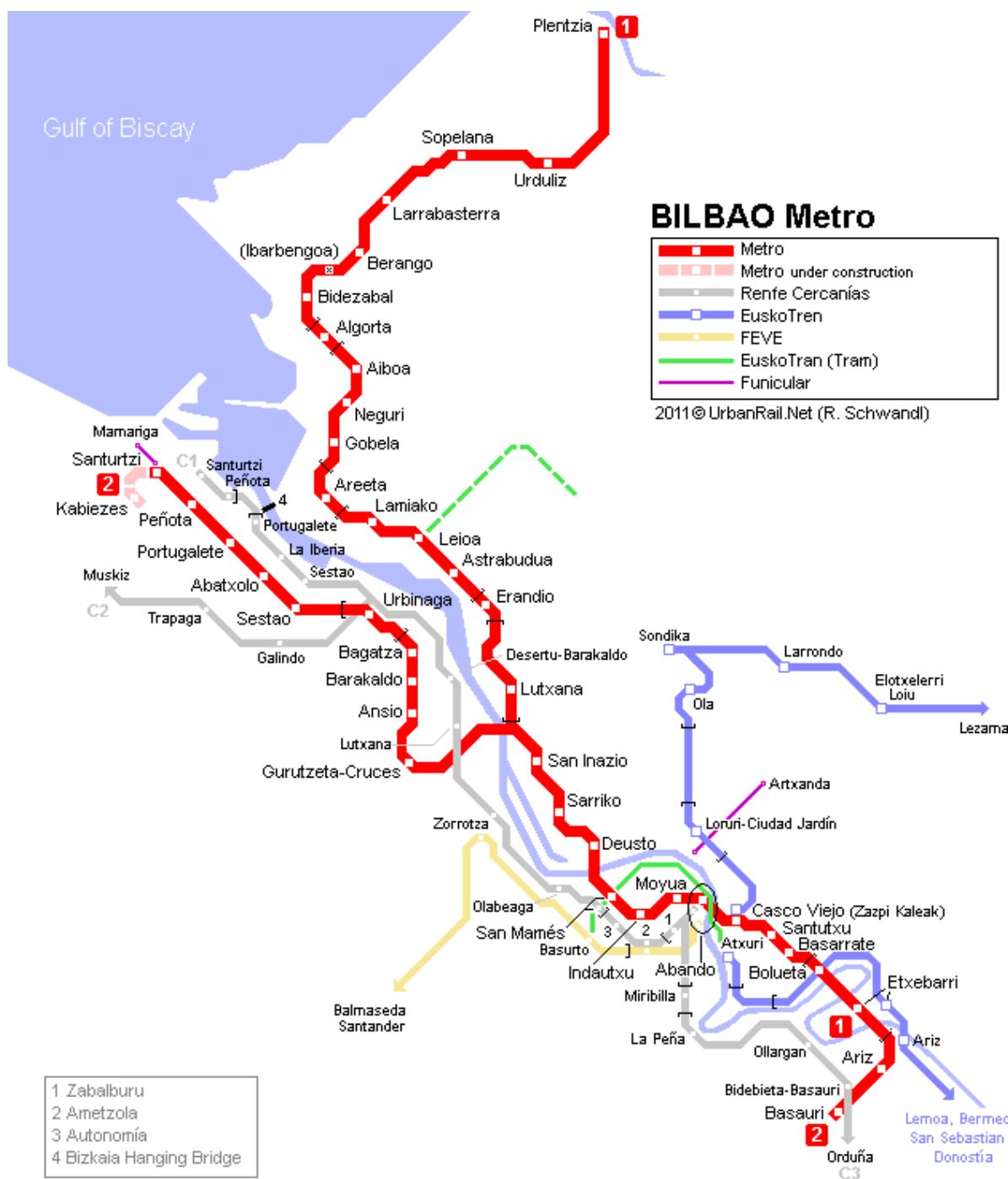


Image 02. Tram stop

A new tram line serves the canal side in the urban centre, saving traffic and parking space and adding to the citizens' health and quality of life.

# Bilbao Metro

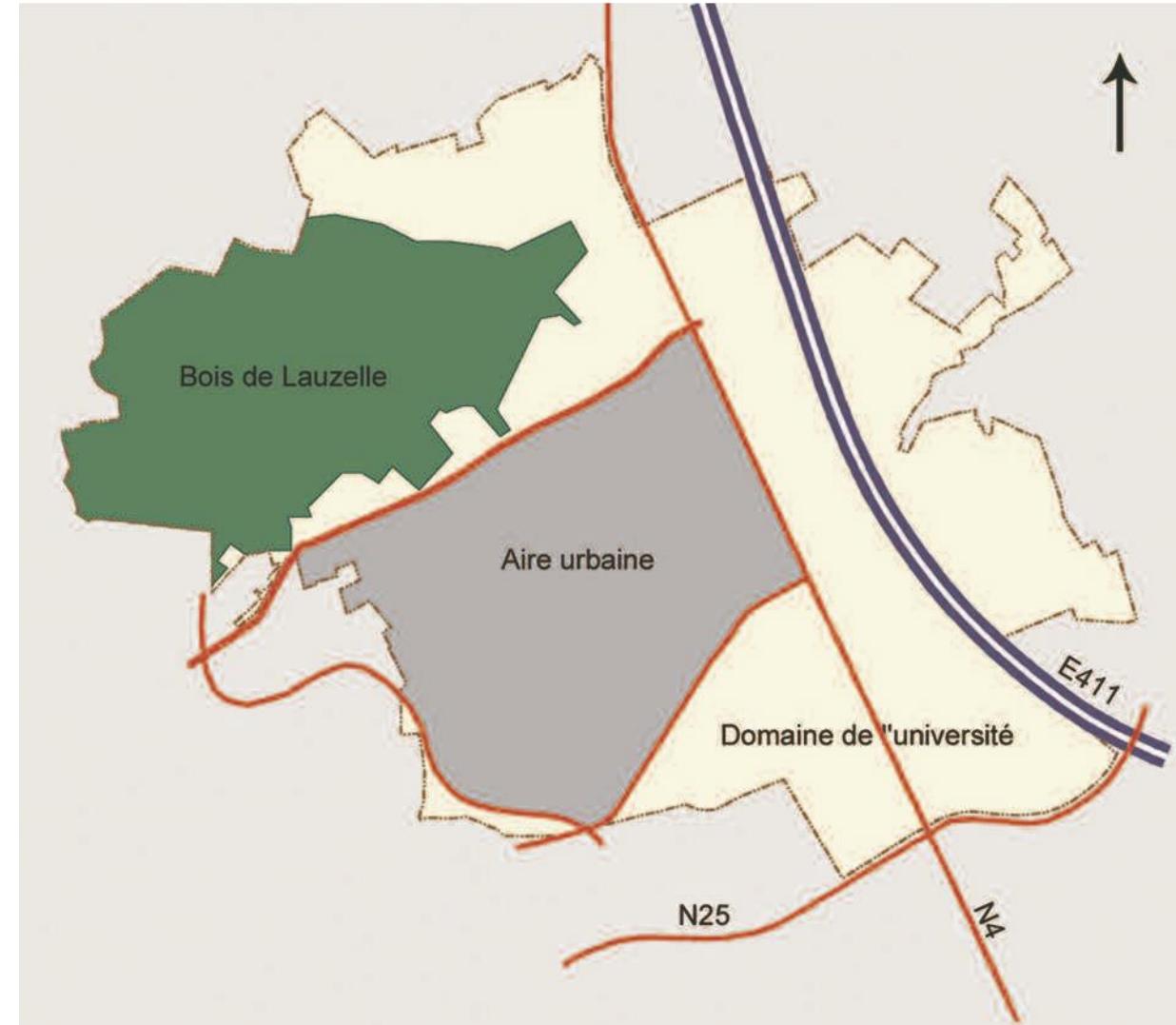
Partly new (with stations designed by Norman Foster) and partly reusing old industrial railways, it enhanced connectivity throughout the city and its region and attracted energy saving public transport.



### **3.3) LOUVAIN-LA-NEUVE (Brussels conurbation)**

High density-low rise land-use – planning for resource saving – intense citizen involvement (1969/1972-)

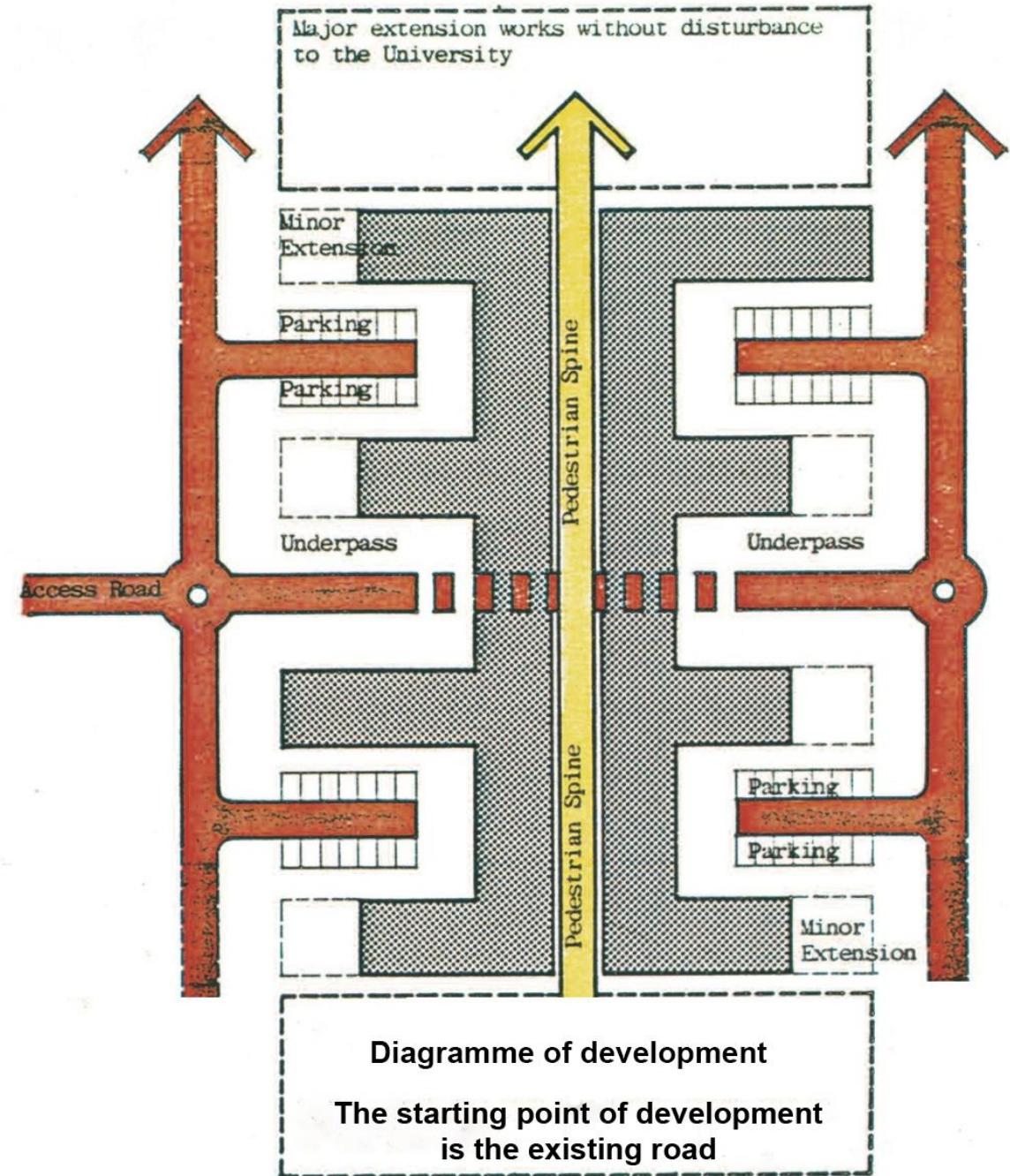
**The case of the new university town** - The university bought circa 920 hectares of agricultural and forest land in a rural area close to the Brussels-Namur road (N4): the central part was set aside for urban development; forest land in the north was preserved. The overall master plan and architectural coordination was entrusted to the Groupe Urbanisme-architecture (R. Lemaire, J-P. Blondel and P. Laconte).

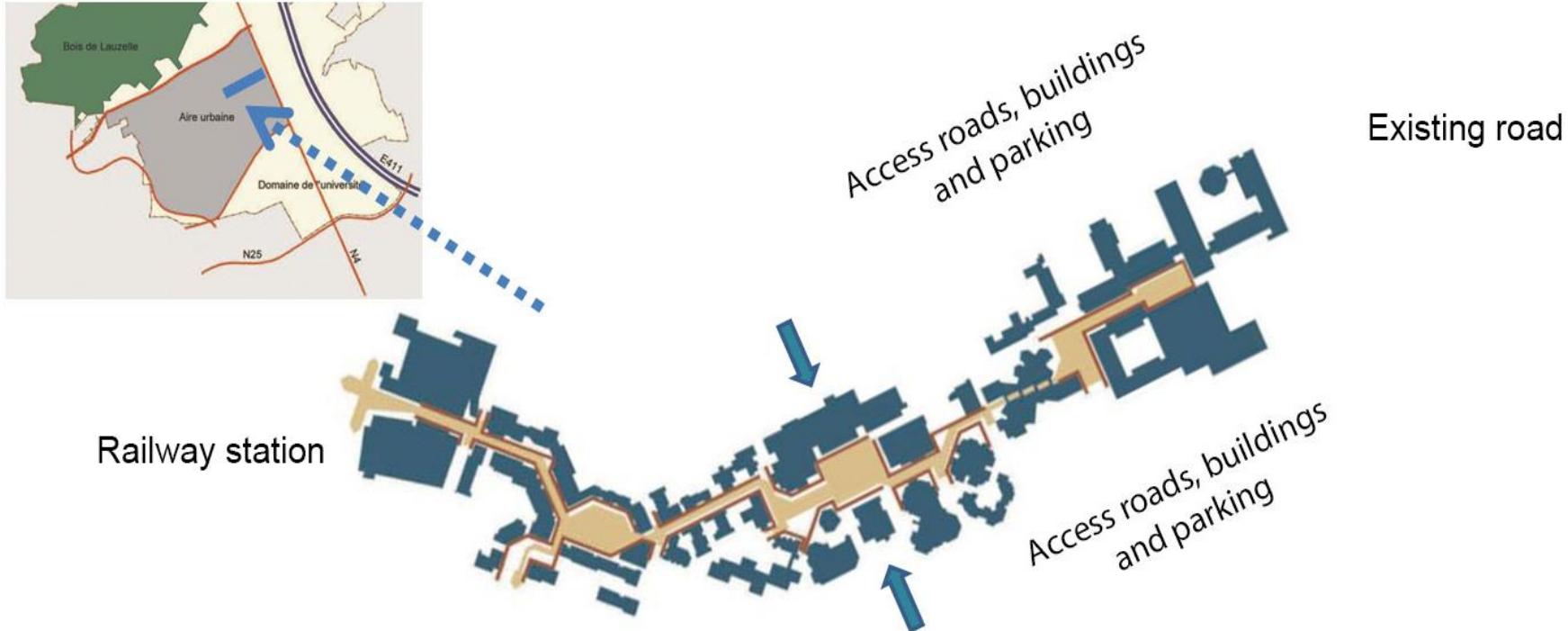


## Planning for uncertainty

A linear pedestrian central spine allows step-by-step mixed urban development and automobile access to buildings, parking being placed outside of the spine with occasional underpasses.

The pedestrian option allowed a reduction of infrastructure costs and protected citizens' health.





**The pedestrian place-making.** This was implemented in the main pedestrian street in the first phase, starting from the existing road east of the site, in 1972 (lower part of the picture), and later extended to the railway station opened in 1976 (upper part), the centre of the city, and towards the western part of the site. Car access to buildings and parking is placed outside the spine, with some underpasses. Property development of the whole university-owned site (920 ha) is on long-term leases (75 to 99 years).



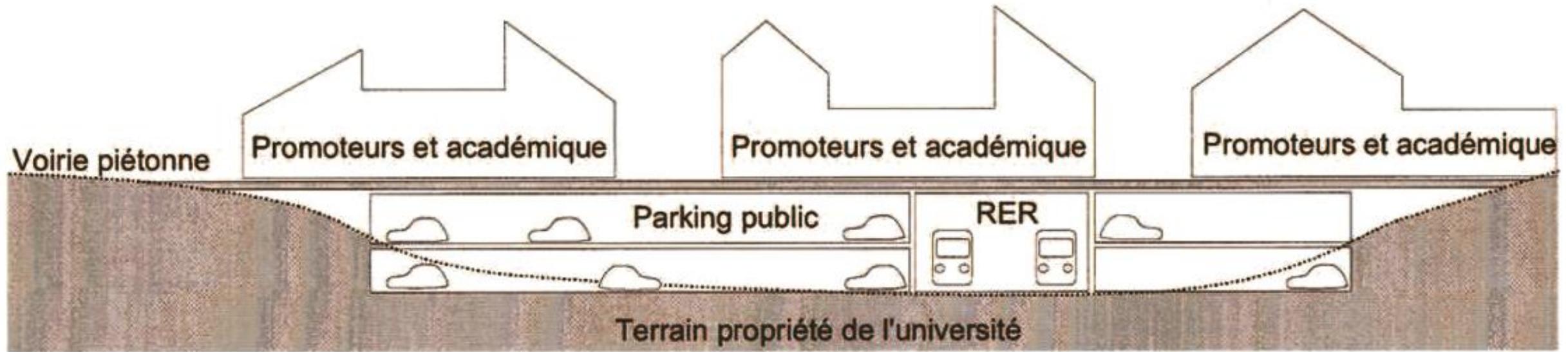
## A string a public spaces for leisure and pleasure.

The centre of the first phase (1972) was the Science Library, a huge concrete building seen as the cathedral of a university town with its plaza (parvis), above an automobile underpass. It is a social gathering place with university buildings, shops and restaurants (architect A. Jacqmain). Built 45 years ago it has consistently been a place of alternating tranquillity and animation.





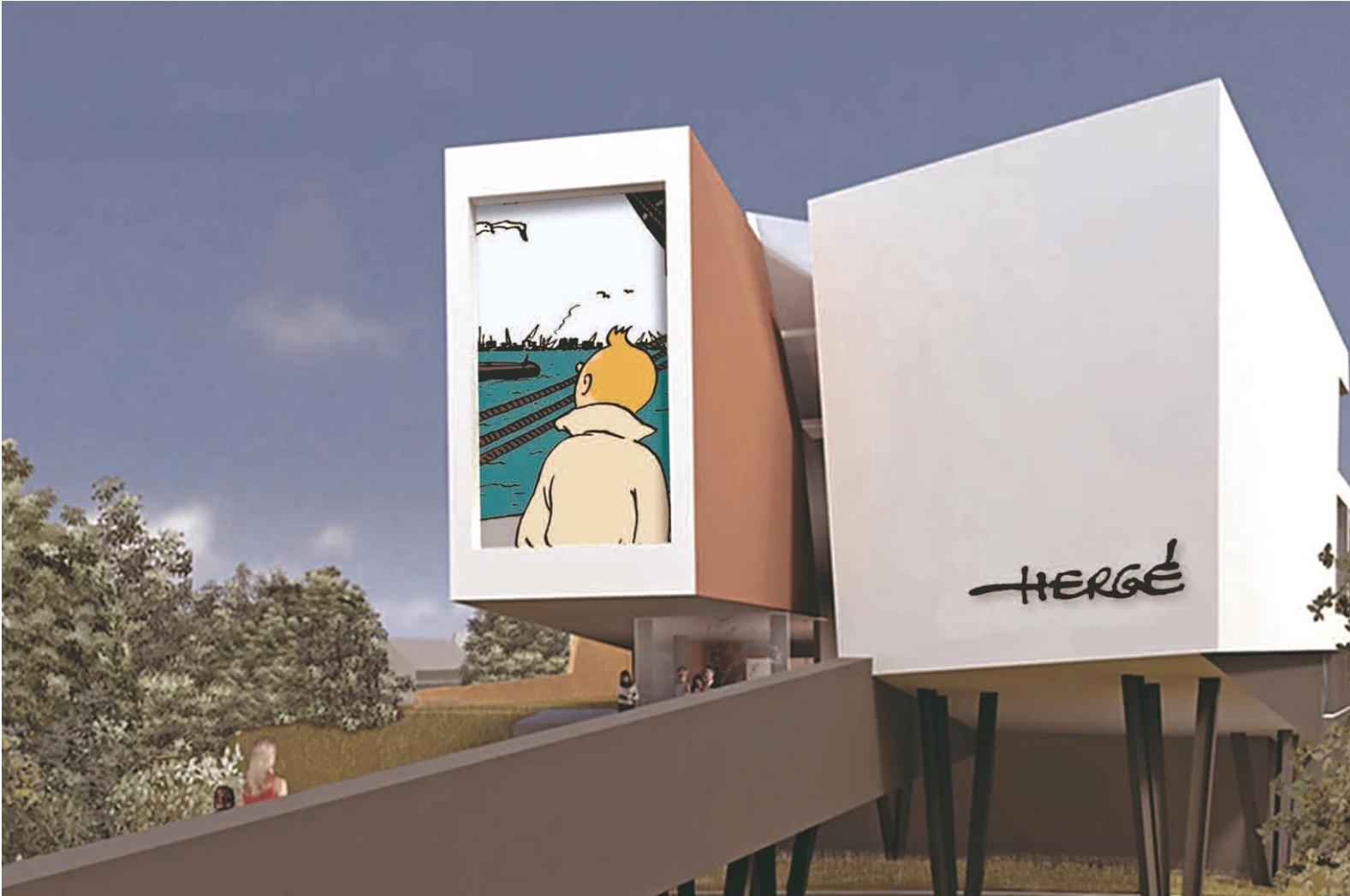
**Street entrance to the railway station.** All streets are pedestrian and combine university buildings, housing, retail and cultural services. Land remains the property of the university and is leased to investors. All motorised transport is located underground.



The functioning of the slab. The diagram shows how the ground below – essential for long-term connectivity - remains the property of the university. The infrastructure and buildings are leased to public and private investors.



View of one the numerous small piazzas on the pedestrian street network. Trees are growing on the slab. Cars are parked underneath.



The shopping mall adjacent to the railway station (8 million users/year) and the private Hergé museum (architect de Portzamparc, Paris) are all part of its high density-low rise development.



Louvain-la-Neuve water management: all storm water is led to a reservoir which is treated as a lake, which saves infrastructure costs and attracts residential investment.

The continuity of its planning and governance over 50 years was ensured by the combined strength of its mayors, the latest of whom has served over 18 years, and of its residents' council (Association des habitants de Louvain-la-Neuve), a countervailing power to both the city authority and the university landlord.

## Conclusion

Combining on the one hand the “smart cities” functionalities that enhance the availability of urban services, safety and security for all citizens with, on the other, the “emotional” qualitative appeal to their citizens and users is perhaps a key to urban sustainability and to adaptation to the unavoidable economic, social and disruptive technical changes affecting cities.

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# Post-Scriptum: an artist's illustration

Mobility and Liveable Cities –  
the transport network  
irrigating the city.

Poster by Friedensreich  
Hundertwasser (1928-2000)  
for UITP (1991).



Mobility and Liveable Cities -  
the compact city.  
Poster by Friedensreich  
Hundertwasser for UITP  
(1993).



Mobility and Liveable Cities -  
enjoyment as a key to  
liveability.

Poster by Friedensreich  
Hundertwasser for UITP  
(1995).

